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Agricultural Biotechnology: A Review

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Biotechnology offers scientific techniques in which biological resources can be efficiently utilized without placing additional demands on land or water to boost yield or enhance quality of product and life. Agricultural biotechnology is one of the tool in the portfolio of biotechnological options. In a country like India which has 17.5% of the world's population and 2.3% of worlds land area, agricultural biotechnology can play a significant role in fulfilment of the nutritional requirements of its people. In agricultural biotechnology disease resistant, insecticide resistant, pathogen free plants are produced with high yield and nutritional quality. Molecular breeding of crops has been done for improving tolerance to abiotic stresses such as salinity, drought, and oxidative stress. Beyond cultivation, agricultural biotechnology also provides protection to soil, farmers and consumers from exposure to chemical residues. It also provides economic opportunities in the area of biopesticides and biofertilizers that have the potential to help the farmers move up the value chain. However inspite of advancements in agricultural sector, still the country is not free from hunger, disease and poverty. Various controversies exist in biotechnological field. Worried environmentalists, suspicious consumers, traditional farmers, and other have protested it. Many nations have made laws to restrict biotechnological research in certain areas. But despite such controversies and restrictions biotechnology is still making progress in many fields. Improvements are invited at policy level. Awareness and persuation of farmers is necessary for the adoption of new technological advancements. Beneficial aspects should be widely circulated in public. Besides, regulations are necessary to protect the public health and safety, conserve natural resources and address ethical issues.